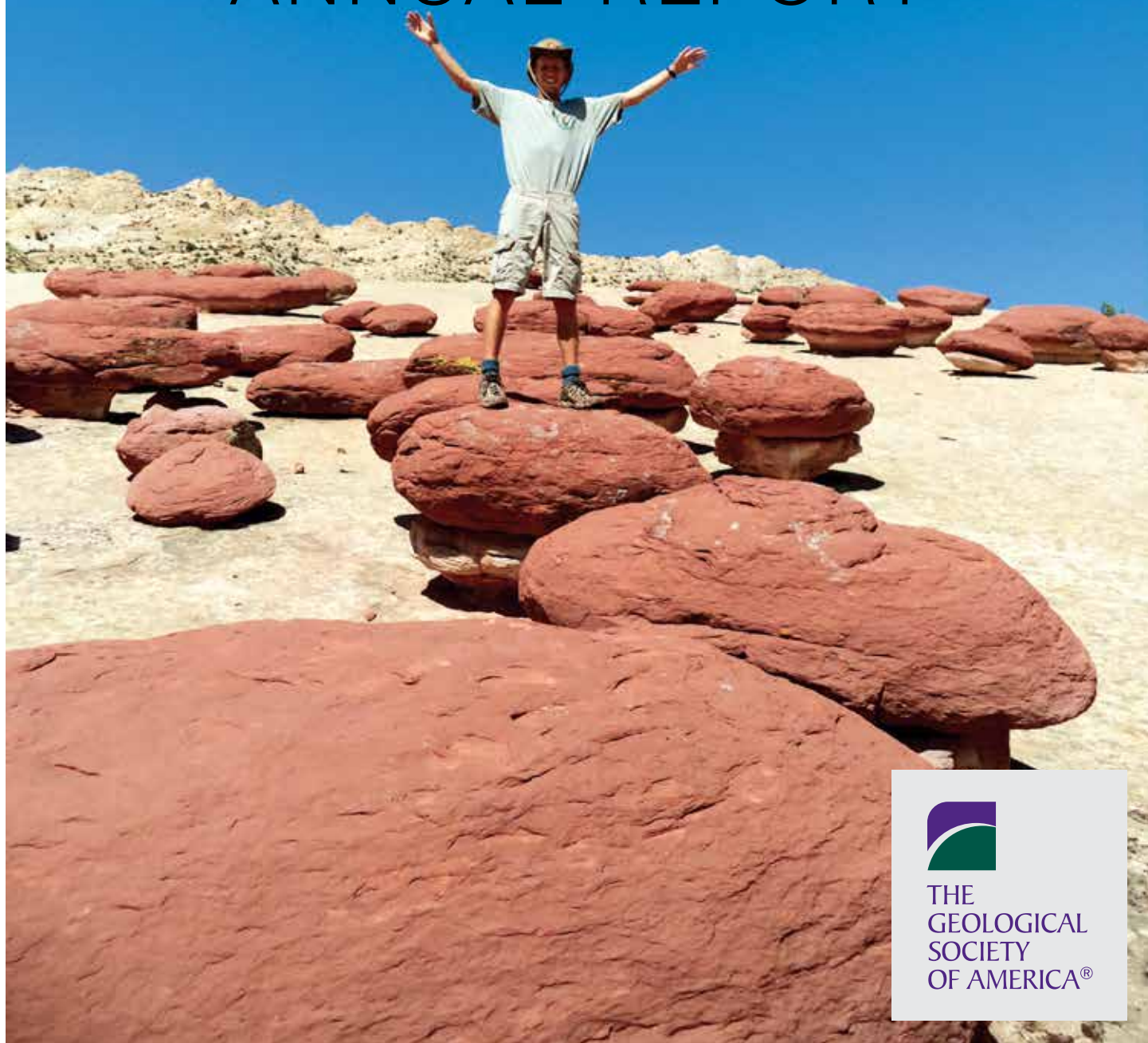




# 2013 ANNUAL REPORT



THE  
GEOLOGICAL  
SOCIETY  
OF AMERICA®

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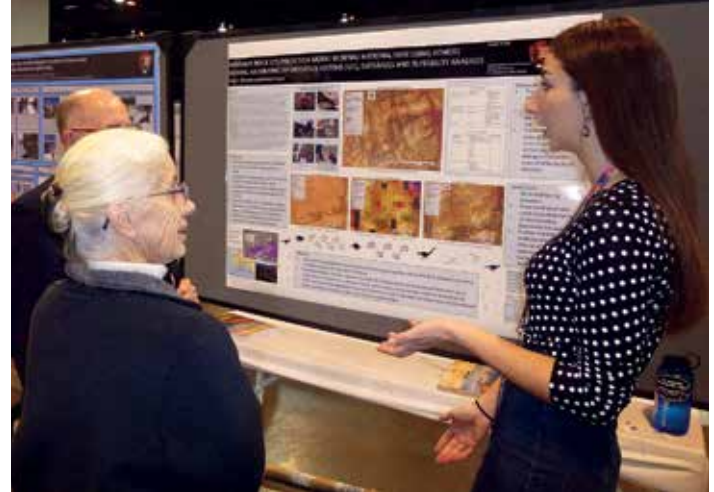
# Geoscientists Working for Education, Conservation and Research on America's Public Lands: An Introduction to GeoCorps™ America

## *What is GeoCorps America?*

GeoCorps America is a program of The Geological Society of America (GSA), partnered with the Bureau of Land Management, the National Park Service, and the U.S. Forest Service. Through GeoCorps America, GSA places volunteer geoscientists from all walks of life in temporary, short-term projects on America's public lands. The Education and Outreach Department of GSA administers the program, and the partner agencies provide projects and mentors for the GeoCorps participants to engage with.

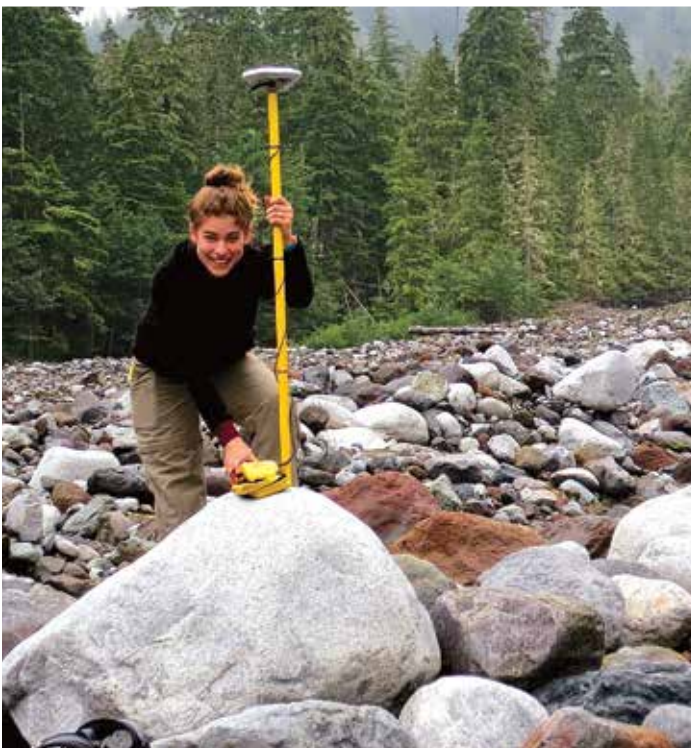
GeoCorps participants are rewarded with new and valuable experience and training in career-related projects. They have the opportunity to conduct fieldwork, interpretation, or research in some of the most stunning natural settings in the United States. In addition, they have the satisfaction of knowing that their work is providing a public service by contributing to the stewardship of these public lands for generations to come. Volunteer geoscientists are also compensated for the sometimes remote locations they must live in while they complete their projects. They receive an allowance for living expenses and free housing or an additional housing allowance.

In return, the Bureau of Land Management, the National Park Service, and the U.S. Forest Service gain access to the knowledge and experience of geoscientists to complete resource management, conservation, research, and education projects that otherwise might not be possible. In many cases, geoscience topics are not adequately

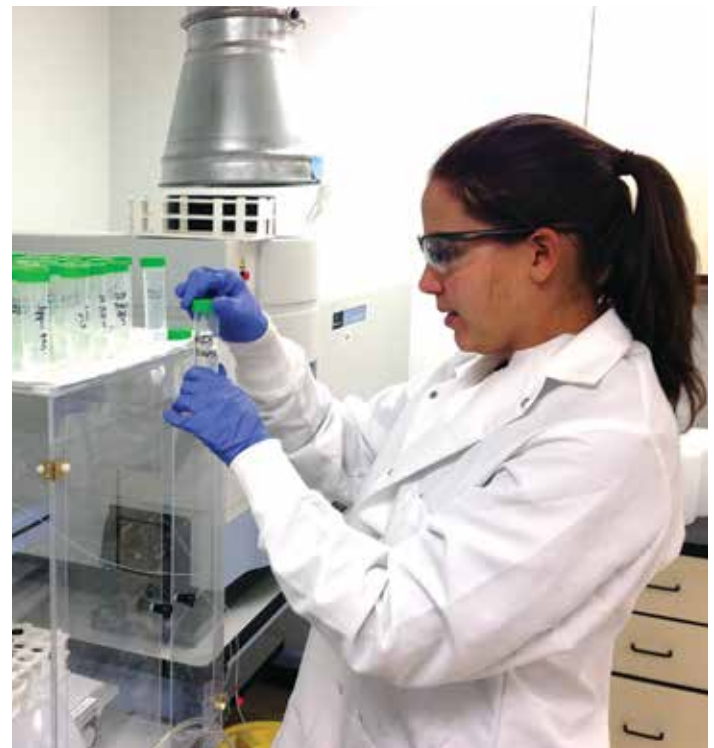


GeoCorps participant presents a poster at the GSA Annual Meeting.

addressed in such projects because of a lack of staff, resources, and expertise. Through GeoCorps America, GSA seeks to increase the number of geoscientists contributing to on-the-ground work on America's public lands, as well as increase interest in working for the state and federal agencies that care for these spectacular natural resources.



Collecting GPS data in the Carbon River Valley.



GeoCorps participant prepares water sample for analysis.



## *The History of GeoCorps America*

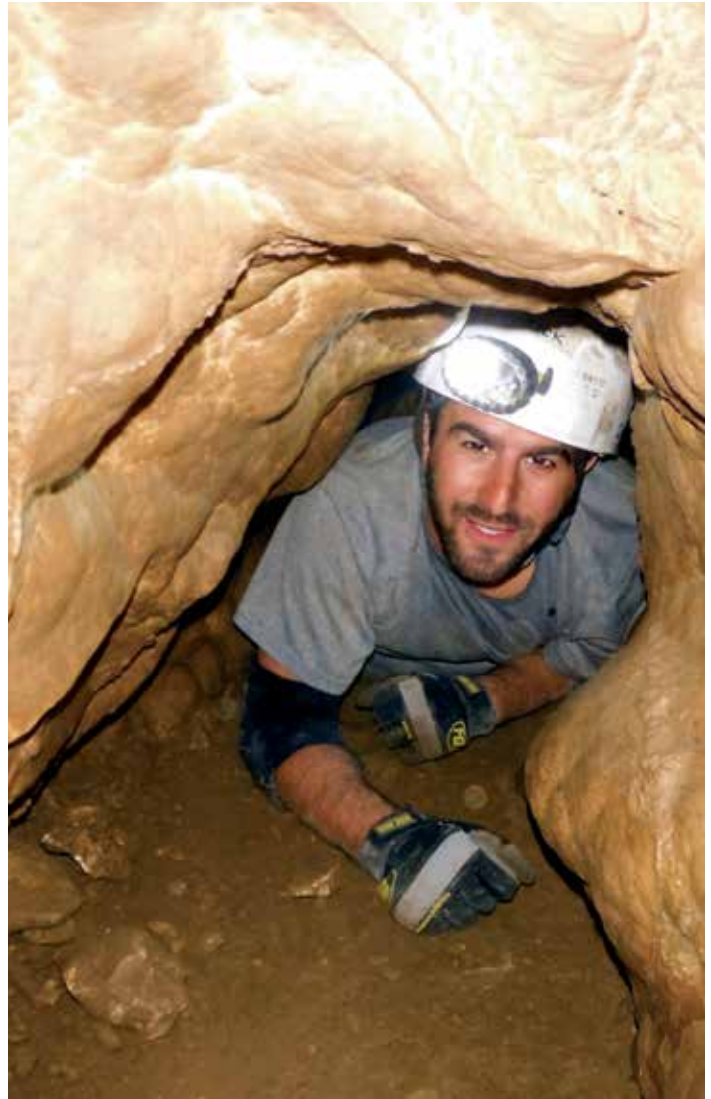
GeoCorps America began in 1997 with a partnership with the National Park Service “Undergraduate Summer Internship Program.” Much as GeoCorps works today, GSA administered the program and helped place two volunteers in projects at two different National Parks. Because the projects completed in the first year were a great success, the partnership continued. By 1999, the number of volunteer opportunities and National Parks involved in the program had more than quadrupled.

In 2000, the program was redesigned and rebranded as GeoCorps America. The program also gained a new partner, the U.S. Forest Service and its program “Geology in the Forests.” This program partnered with GeoCorps to place four volunteers in four different forests in the Pacific Southwest Region of the United States. Between projects with the National Park Service and the U.S. Forest Service, GeoCorps America included 16 positions nationwide in the year 2000.

The GeoCorps America program continued to grow and expand. In 2005, the Bureau of Land Management (BLM) became the third program partner. By this point, the program was placing 24 volunteers in 22 National Parks and 12 volunteers in seven National Forests. Partnering with the BLM brought two new BLM areas and two additional volunteers onboard. In 2012, GeoCorps added another new partner: the State of California Department of Conservation. Through this partnership, GeoCorps placed four participants in projects with the Department’s Abandoned Mine Lands (AML) Unit. This represented the first partnership with a state-based government agency.



Excavating an articulated Sauropod leg.



GeoCorps participant exploring a cave.

GeoCorps America has remained relevant to its partners and participants over the last eight years. Reflecting this, the number of parks and participants involved has continued to grow. In 2013, the program included 10 BLM lands, 44 National Parks, and 12 National Forests and encompassed 118 different projects. A new five-year cooperative agreement with the National Park Service was negotiated, ensuring the continuation of that successful partnership. 2013 was also the pilot year for a new GeoCorps sister program called Mosaics in Science (MIS). MIS is run jointly by the National Park Service and GSA. The program places youth from groups under-represented in the sciences in STEM-related positions at the National Park Service. 2013 saw the largest GeoCorps session in the program’s history at the GSA Annual Meeting. The session included over thirty oral and poster presentations, and represented a huge increase in GeoCorps volunteer participation in the conference. In 2013, GSA was also named as one of the 91 organizations recognized as a member of the 21<sup>st</sup> Century Conservation Service Corps, due to its continuous work on GeoCorps America and the new MIS program.

## The GeoCorps America Mission

The mission of GeoCorps America is to further the stewardship of America's public lands through geoscience awareness, education, and research by providing inclusive, hands-on career development opportunities.

The program seeks to achieve this mission through the following objectives:

- Increase the number of geoscientists interested in conducting research, education, and resource management on America's public lands by providing rewarding opportunities for hands-on education and career development
- Broaden the diversity of the geoscience community by providing inclusive opportunities to gain valuable, career-related experience
- Promote the adoption of a land ethic by current and future geoscientists, resource managers, and policy makers
- Build public and professional awareness of the role of the geosciences in resource management and policy making
- Raise public knowledge of the value of geological, and other, natural resources

The three focuses of GeoCorps America, *awareness, education, and research*, relate to the goals and strategic plan of The Geological Society of America. The program's objectives serve as stepping stones on the path to fulfilling those goals. Key to increasing awareness of the importance of the geosciences is engaging a diverse community and fostering a diverse community within the profession. To this end, GeoCorps has multiple streams in the hope of opening up more opportunities for groups generally underrepresented in the geosciences. The program's dedication to fostering a diverse geoscience community is also demonstrated by the new partnership with the National Park Service on MIS. The MIS program is strongly focused on encouraging diversity, not only within the geosciences, but in a variety of STEM subjects. Participants in GeoCorps and MIS go on to be advocates of the programs, the sciences, and Earth stewardship.

Education plays a fundamental role in GeoCorps. Through the program, participants continue their own geoscience education in some of the most amazing outdoor classrooms in the country. They bring new insights and information to the agencies they are working with and contribute to a vibrant geoscience community made up of students, professionals, teachers, and government employees. Many also become teachers through their projects by engaging with the many visitors to these public lands and sharing with them the importance of the geosciences to responsible stewardship of our natural resources.

The links that the GeoCorps America program creates support efforts to advance geoscience discovery. By providing a venue through which geoscientists at all education and career levels can collaborate, GeoCorps America helps to encourage the exchange of the types of diverse views and experiences that lead to scientific discovery. These links also help to support early career professionals by supplying the opportunity to explore, hone their skills, and gain valuable experience, as well as by introducing them to current professionals who can act as mentors. In this way, GeoCorps does its part in supplying the building blocks for a strong, diverse, and sustainable geoscience community in the future.

"GeoCorps has also been, if not a life saver,  
definitely a career saver."

—Vanessa Calder, GeoCorps Participant, California  
Abandoned Mine Lands Unit.



Teaching Jr. Rangers what they need to take on a hike.





GeoCorps participant delivering a public talk.

GeoCorps America has been expanded into four streams in order to encourage more diversity in the program, in both the participants and the types of projects.

**GeoCorps** projects are open to geoscientists of all ages and backgrounds, with a special focus on participants in the 17–25-year-old age range. The general aim is to increase the number of geoscientists working on America's public lands.

**GeoCorps Diversity** projects aim to stimulate interest in careers in geoscience in underrepresented groups and create a more diverse work-force on America's public lands. Applicants from groups that are underrepresented in the sciences are highly encouraged to apply.

**GeoCorps American Indian** projects aim to stimulate interest in careers in geoscience among American Indians. American Indians, Alaska Natives, and individuals with strong connections to either of these communities are highly encouraged to apply.

**GeoCorps Guest Scientist** projects fill the need for geoscientists to work on longer-term projects. These GeoCorps positions can last up to one year and may require specialized skill or expertise to complete a specific project for the host agency.

## GeoCorps America Today

Today, GeoCorps America volunteer opportunities are offered twice per year, through four different streams. Positions are open to geoscientists from all walks of life, including students, recent graduates, professionals, teachers, veterans, and retirees.

Position descriptions are posted online on the GeoCorps America page on GSA's website. Position descriptions were posted and applications were opened on 1 December 2012 for summer 2013 positions. Applications were due by 4 February 2013. Most summer positions were 12 weeks long and began in May of 2013. Fall/Winter position descriptions were posted and applications were opened in May. Applications were due by 1 July. Fall/Winter positions were generally 12 weeks long. They began anywhere from the beginning of September to the beginning of March.

Participants receive a living expenses allowance, free housing or a housing allowance, and a travel allowance, depending on the location of their project. As part of the GeoCorps America program, the participants submit a report at the end of their project, as well as captioned photos, examples of the work they produced, and an evaluation. Participants are also given the opportunity to contribute to a blog and to present their work at the GSA Annual Meeting.

## Disciplines Explored through GeoCorps™ America:

- Geology
- Geomorphology
- Volcanology
- Hydrology
- Mineralogy
- Pedology/Edaphology (Soils)
- Geological Hazards
- Glaciology
- Coastal Geography
- Oceanography
- Cartography and GIS
- Paleontology
- Speleology (Caves & Karst)
- Archaeology/Anthropology
- Astronomy
- Education & Interpretation

# Delivering Discovery, Diversity and Demand for Geoscience: The Impacts of GeoCorps™ America in 2013

## *GeoCorps America Projects*

In 2013, GeoCorps America worked with ten BLM lands, 44 National Parks, and 12 National Forests on 118 geoscience projects on America's public lands. These numbers do not include projects or participants that were part of the Mosaics in Science program, which will be addressed in a separate report. Considering the start of the federal budget sequestration on 1 March 2013 and the federal government shutdown from 1 to 16 October 2013, both of which impacted GeoCorps' partner agencies, this represents a maintenance of GeoCorps' numbers and is a positive sign for the program's relevance and resilience. Project locations spanned the United States.

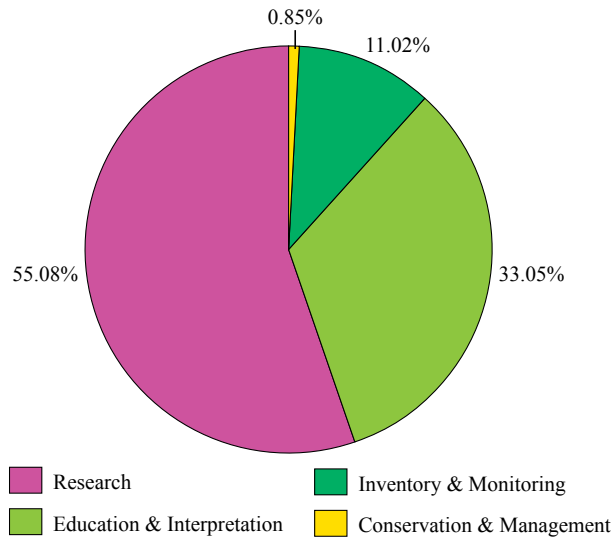
All of the four GeoCorps streams were represented by the GeoCorps projects completed in 2013, with a strong number of Guest Scientist positions, where participants took part in longer projects with a more specialized focus. The 118 projects span a variety of focuses and disciplines. Participants took part in work involving research, inventory and monitoring, conservation and management, and education and interpretation. Over 50% of these projects involved some form of original

research by the participant, contributing to our knowledge of the geosciences, and aiding public land management and conservation activities. Over 30% of the projects focused on education and interpretation and helped to bring more awareness of the geosciences and their importance to the general public. Disciplines engaged with through these projects include geology, geomorphology, hydrology, pedology/edaphology (soils), geological hazards, glaciology, coastal geography, oceanography, cartography and GIS, paleontology, speleology (caves & karst), astronomy, and geoscience education and interpretation. The broad scope of the projects included in GeoCorps America demonstrates the program's contribution to furthering geoscience discovery and knowledge.

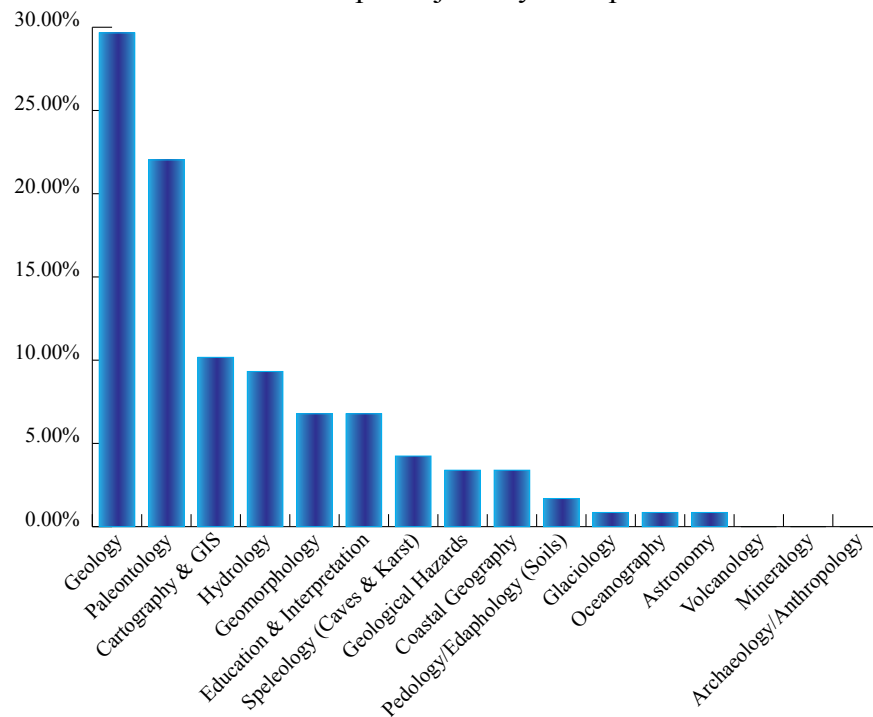
## 2013 GeoCorps Projects by Location.



2013 GeoCorps Projects by Type



2013 GeoCorps Projects by Discipline





## 2013 GeoCorps America Project Highlights

### Amy Atwater and Montana Hodges

*The National Park Service*

*Denali National Park and Preserve, Denali, Alaska*

#### Ichnofossils in Denali National Park

In 2005, dinosaur tracks were discovered in Denali National Park. Dinosaur tracks, bird tracks, leaf imprints, and other fossils that show evidence of biological activity in an area are known as *ichnofossils*, or trace fossils. At Denali, these fossils can be found in the Cretaceous period Cantwell Formation. Amy Atwater and Montana Hodges both worked on projects to enhance the study and the public enjoyment of this fascinating paleontological resource.

Building on the recording and mapping efforts of past GeoCorps participants, Amy Atwater spent her time at the park developing a technique to identify areas that are likely to contain fossils without having to send researchers into the field. The size and terrain of Denali presents considerable accessibility challenges for researchers collecting data in the field. The system Amy worked on used the information collected about the fossil sites in the past and suitability analysis in ArcGIS to predict probable sites where new fossils might be discovered.

Montana Hodges' focus was managing and protecting the constantly growing fossil information at Denali National Park. Montana completed a management and monitoring plan for the paleontological resources at the park, allowing professional researchers and public interest groups to access the fossils safely. In her work, she created a Paleontological Orientation Handout, established guidelines for how the public could view the fossil sites, and developed ways to educate more of the National Park Service staff on the paleontology in the park.

During their time at Denali, Amy and Montana also participated in identifying 22 new fossil sites, including the first set of ankylosaur prints ever found at Denali. They developed new fossil site survey methods, and a paleontology presentation was created for the Murie Science and Learning Center. Amy Atwater also produced a blog on her time at Denali National Park and Preserve (<http://geosociety.wordpress.com/2013/10/25/my-life-as-a-geocorps-participant-at-denali-national-park-and-preserve/>), and presented a poster at the 2013 GSA Annual Meeting.



Amy Atwater finding leaf fossils.



Amy Atwater beside a hadrosaur track.



Rebecca Rossi, Paul Kennard, and Jonathan Beyeler.

### **Jonathan Beyeler and Rebecca Rossi**

*The National Park Service*

*Mount Rainier National Park, Ashford, Washington*

#### Responses to Climate Change in the Carbon River Valley, Mount Rainier National Park

Climate change is affecting Mount Rainier in many ways. It has affected the degree, frequency, and timing of precipitation, the length of cold winter months, and the timing of the spring snowmelt. It has affected the snowpack and glacial accumulation—glaciers in Mount Rainier National Park are retreating, thinning, and, in some places, stagnating. All of these changes trickle down into the river valleys and pose potential problems for the National Park.

Jonathan Beyeler and Rebecca Rossi spent their time as GeoCorps participants on a pilot project called “War of the Woods: Carbon River,” assessing the effects of climate change on the Carbon River Valley and potential geohazards to park infrastructure such as roads, trails, and campgrounds. By investigating aerial imagery, using LiDAR data sets, researching the valley’s flood record, and mapping active and non-active river channels, they created a picture of the regular cycles of the river channels and flood plains of the pro-glacial braided fluvial system of the Carbon River Valley. Comparing this information to changes in the Carbon River Valley, and other rivers in the area, they began to assess how vulnerable the Carbon River Valley is to drastic changes in the location of river channels, frequent flooding, and resultant damage to the adjacent forest. Drastic loss of the forest could lead to the unchecked movement of the river channels, widening of the flood plain, and severe damage to park infrastructure and resources from flooding.

While conducting the research for this project, Jonathan and Rebecca also participated in other projects on glaciers at Mount Rainer National Park. They helped install equipment to monitor the movement of a glacier and located initiation sites of lateral debris flow. They also mapped interesting glacial features for a PBS crew filming in the park, and assisted the crew in accessing these interesting sites.



Panorama of the Carbon River Valley taken by Jonathan Beyeler.





Recording an abandoned mine feature. Brett Sherman.



Vanessa Calder.

### **Vanessa Calder, Sean McCartney, and Brett Sherman**

*California Department of Conservation*

*The Abandoned Mine Lands Unit, Sacramento, California*

### Recording Abandoned Mines in California National Parks

In 1997 the Abandoned Mine Lands Unit of the California Department of Conservation was formed with the purpose of creating a state-wide inventory of abandoned mine features and their associated geological hazards in the state of California. The Abandoned Mine Lands Unit took a three-year contract to complete an inventory of these features on National Parks in California, and when the great number of mine features was recognized, three GeoCorps Guest Scientists were brought onto the project to help complete it.

While working as part of the Abandoned Mine Lands Unit Vanessa Calder, Sean McCartney and Brett Sherman inventoried mine features in Yosemite National Park, Death Valley National Park, Mojave National Preserve, and Joshua Tree National Park and completed the associated research and paper work at the Sacramento office of the California Department of Conservation. The research they conducted prior to fieldwork included background reading on the area and familiarizing themselves with maps and aerial imagery. This allowed them to identify potential abandoned mine sites before getting into the field. The information they collected from this research could be downloaded to handheld GPS units to help locate the sites.

Fieldwork was conducted during week-long trips, where they sometimes camped near the mining sites to cut down on travel. During fieldwork, the abandoned mine features would be located using the GPS units, and then each aspect of the abandoned mine would be recorded. Recording included taking a GPS location, taking pictures, and making detailed notes about the geology, biology, and cultural significance of the site. Each site was also given an accessibility and hazard rating. These would allow the National Park Service to decide if any of the sites needed mitigation, such as professional closing, to prevent people or the land coming into contact with hazards.

Vanessa, Sean, and Brett were then involved in the process of permanently recording this information back at the office. The GIS information had to be entered into a database, notes on the sites needed to be added to the Abandoned Mine Lands Database, and photos needed to be added to the database along-side the appropriate site information.

At the beginning of the identification project there were 5,307 known mine features on National Parks in California. By the end of the project, a total of 1,093 abandoned mine sites, and 25,602 individual features, had been identified. Vanessa, Sean, and Brett contributed to the identification and recording of 48% of these sites and features. The Abandoned Mine Lands Unit received an award at the end of the project from the California Department of Conservation for "Sustained Superior Achievement." All three of the GeoCorps participants received commendation letters from the director of the Department of Conservation as part of this award, acknowledging their "indispensable contribution" to the project.



Sean McCartney.



Brett Sherman.





Recording an unofficial trail.

### **Kelly Gray**

*The National Park Service*

*Delaware Water Gap National Recreation Area, Layton, New Jersey*

### **Conservation and Management through GIS at Delaware Water Gap National Recreation Area**

Maintaining a delicate balance between the needs and desires of the visitors at National Parks and the sometimes delicate natural resources that the visitors have come to enjoy can be complicated. Kelly Gray took on a variety of projects requiring the use of Geographical Information Systems (GIS) at Delaware Water Gap National Recreation Area that helped to maintain that balance.

Kelly's main project was a survey and assessment of the impact of visitor-made, unofficial trails at the Hialeah Picnic Area and Kittatiny Point Visitor Center. Both areas are close to the Delaware River but are not designated swimming areas. Despite this, visitors often forge their own path to the river, and the repetitive use of certain paths has created new trails. Kelly mapped these unofficial trails, recorded their features, and recorded any vegetation in the area. She then used this information to create a map and cross section to help guide the restoration of one of the most damaged areas.

Kelly also created a basemap of the official trails in the park to be used as a template for a new trail map for visitors. This new map would not only help to prevent further damage from visitors going off trail, but would also help the visitors choose the appropriate path for the level of activity they were seeking.

Kelly's other conservation and management-focused activities included updating the park's database of historically significant buildings and structures so it was up to modern standards, completing a viewshed analysis to determine areas outside the park that would impact the park if the land was developed, and recording spatial information for a survey of ash and hemlock trees.



Exploring the geology at Lost Lake near Fort Benton, Montana.

### **David Khambu**

*The Bureau of Land Management*

*Upper Missouri River Breaks National Monument, Fort Benton, Montana*

### **Interpretation through EarthCaches at Upper Missouri River Breaks National Monument**

The wide-open, natural spaces of Bureau of Land Management areas can often pose a challenge to education and interpretation efforts. With so few guides, and so much space, how do you make information on the local geology available to visitors exploring the park? David Khambu explored a creative way to do this through GSA's EarthCache™ program.

An EarthCache is a type of GeoCache where the treasure located using the GPS is the local geology and the lesson it teaches, rather than items hidden in a container. David's main project while at Upper Missouri River Breaks National Monument was creating two EarthCache trails for two different audiences. One trail highlighted unique geological features for tourists on a road loop through the Highwood Mountains. The five EarthCaches that made up the trail discussed the geological story of the mountains, how certain prominent landscape features were formed and identified rock formations and types. The second trail included seven EarthCaches and was designed for fifth graders taking a canoe trip along the Marias River. These EarthCaches discussed river mechanics and how the river interacted with the landscape and had a role in shaping it. They also highlighted unique geological features along the river and taught the students to look at the Earth around them in order to learn its story.

David also interacted with a lot of visitors and with the local community. He identified rocks for visitors when they brought them to the visitor center and explained how the specimens had been formed. He helped to transport and catalogue a fossil collection that the local court house was giving away and also wrote some articles on local geology for *The River Press* in Fort Benton.

**Kelli Parsons**

*The U.S. Forest Service*

*Willamette National Forest, Blue River, Oregon*

**Springs, Bogs, and Frogs in Willamette National Forest**

Groundwater resources have a huge impact on the flora and fauna within our National Forests. In Willamette National Forest, these resources have particular impact on the habitat of a threatened species, the Oregon spotted frog.

Kelli Parsons surveyed springs in the Middle Fork Ranger District of Willamette National Forest during her time as a GeoCorps participant. Using a hand-held GPS, she collected information on the location of the spring, the spring type, water temperature, and surrounding vegetation. This information will be used in the future as a baseline for evaluating any changes to the groundwater resources in the area due to impact from visitor use or climate change.

In addition to this, Kelli created a Gold Lake Bog monitoring action plan. Gold Lake Bog is the habitat of the Oregon spotted frog, which the U.S. Forest Service proposed be listed as a threatened species during the summer of 2013. Kelli's action plan suggests research and survey measures that can be taken to help monitor changes in the bog. These survey and research activities will provide information on what unique hydrological features create the frog's habitat and are linked to species success. Having this information could help preserve, and possibly expand, the Oregon spotted frog's habitat.



Hiking near Mink Lake, Three Sisters Wilderness.

**Justin Peinado**

*The National Park Service*

*El Malpais National Monument, Grants, New Mexico*

**Exploring the Geology at El Malpais National Monument**

The lava flows at El Malpais National Monument present a difficult and inhospitable landscape to work in, with amazing geological features as the reward. Justin Peinado completed an extensive survey of the geologically significant features on the lava flows at El Malpais, such as the large lava tube caves. The survey and resurvey required hiking on the lava flow, sometimes for five miles in a day. Once located, the newly identified and previously recorded unique geological features were recorded with a hand-held GPS device. Completing the survey included doing a lot of work with the GIS database that stored all of this geological information and making sure all of the information was accurate. When Justin finished his work at the end of the summer, some 400 unique geological features were properly recorded in the database.

Justin also participated in archaeological surveying. In the course of his work, Justin located new archaeological sites. His duties included recording the location of these sites so that he could report the information back to archaeologists. He would then help them relocate the site so that it could be fully documented.

Justin is a second-time GeoCorps participant. He participated in a project with the BLM at Craters of the Moon National Monument, which has a similar landscape to that of El Malpais, in 2012. He also presented at the 2013 GSA Annual Meeting and participated in GSA's "On To the Future" program.



Surveying along a smooth basalt flow.



## GeoCorps America Participant Experiences

Every year GeoCorps participants complete a program evaluation as part of the materials they submit at the end of their project. The evaluation seeks to gather information on the success of a variety of aspects of the project, including the online application system, participant living allowances and housing, and the participants' overall experience. The evaluations allows GSA to assess the program's success in meeting the needs of its participants, gives the participants an opportunity to voice their own suggestions for the program, and highlights areas that need to be focused on in the future. The participant evaluations for 2013 were overwhelmingly positive.

The participants' response to the online application system and GeoCorps website left little to be desired: 99% responded that the website was easy to use and navigate; 95% said that the GeoCorps online application system was easy to use; and 100% responded that the application instructions posted online were clear. The most common suggestion for improvement to the GeoCorps online application system was that the question fields needed to have a larger character limit.

"Truly a great and life affirming experience,  
I enjoyed every bit of it."

—William Chamlee, *GeoCorps Participant, Medicine  
Bow-Routt National Forest.*

The explanation of the living allowance, travel allowance, and housing situation, as well as the processes in place for managing these, also received an extremely positive response: 96% responded that the living allowance amounts and process were explained clearly, and that they experienced no problems; 98% said that the travel requirements and any travel reimbursements were explained clearly. The most problems were experienced with housing; however, 93%

said that the housing situation was explained clearly to them and that they experienced no problems. The vast majority of issues were related to finding housing for projects where the host agency had no housing in place for the participant. Some of the areas that projects take place in are remote, and finding short-term housing can be challenging.

Participants expressed few issues with whether the description of the project they were given matched the project they worked on, or regarding the project goals and supervision they received. 92% of participants responded that the project description matched the project that they participated in. Where the project description and the project completed did not match, the issue noted was that the time allocation for certain types of work was not clear. 89% responded that they received well-defined goals and that their project could be completed within the allotted time. 92% responded that they received adequate guidance and supervision.

The participants' overall experience was also extremely positive: 98% of participants enjoyed working for the public land agency where their project was hosted; 94% responded that their overall experience as a GeoCorps participant was positive and rewarding; and the remaining 6% were neutral and weighed the pros and cons of their experience. None of the participants responded that their experience was totally negative. 100% of the GeoCorps participants from 2013 responded that they would happily recommend the program to their peers, and many noted that they already had!

Rather than highlighting areas that need improvement, 2013's participant evaluations have highlighted a strong and successful framework on which the GeoCorps program can continue to build and presented the challenge of maintaining such positive participant feedback. Areas where there is room for positive growth are planning for challenging housing situations, ensuring that projects match the descriptions the participants receive, the mentorship and support offered to participants, and the connectivity of the GeoCorps community and their esprit de corps. These areas for growth are in line with GeoCorps' overall goal of improving the value of the program, discussed later in this report, and will be addressed as GSA works toward that goal.



A GeoCorps participant at Cape Royal, Grand Canyon, where she gave public talks on geology.



## Participants: Supporting Diversity and Early Careers

The geosciences have a pivotal role to play in how we understand our Earth, its climate, and resources, and, therefore, in how we approach Earth stewardship as a society. Having a diverse community of geoscientists not only encourages the collaboration and variety of perspectives that is key to scientific discovery, but also ensures that the resulting strategies and perspectives on stewardship reflect the opinions of the entirety of America's diverse and multicultural society.

It is doubly important that the geoscience workforce on America's public lands represents this diversity. These public lands, which are held in trust for our generation, and future generations, are more than the sum of their disparate parts. Rather than collections of rocks and rivers, flora and fauna, these places are iconic landmarks that have often come to stand for the character of the nation. It is important that the workforce that manages these places represents American society as fully as the places themselves.

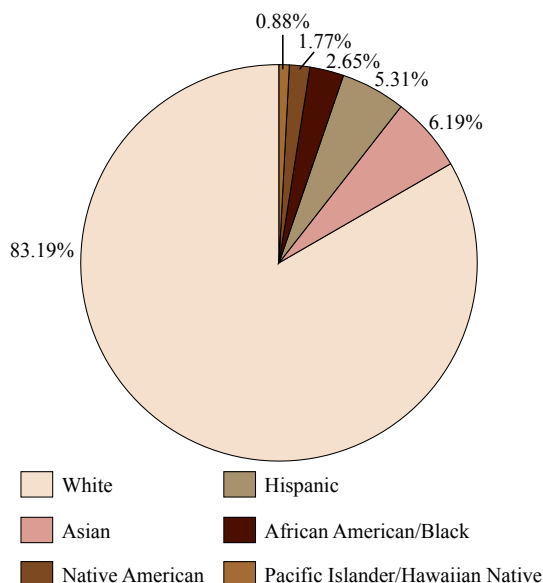
As a program that forms a stepping stone for many budding geoscientists—from formal education to early career—it is essential that GeoCorps America does its part to foster diversity in the program. Through supporting a diverse community of GeoCorps participants, the program encourages a more diverse geoscience workforce on America's public lands, and a more diverse geoscience workforce as a whole.

In 2013, the 118 GeoCorps projects were filled by 113 individual participants. The diversity of these individuals shows promise, particularly in relation to women in the geoscience workforce. In 2011, women held less than 25% of the Science, Technology, Engineering, and Math (STEM) jobs in the U.S., and women with a STEM-related degree were less likely to work in a STEM-related position (Beede, 2011b). Women also made up 50% of all employed college graduates, but only 25% of employed college graduates with a STEM-related degree (Beede, 2001b). Similarly, women earned 40% of the geoscience degrees conferred, but only made up of 30% of the geoscience workforce (Gonzales and Keane, 2011). In contrast, 57% of the GeoCorps America participants in 2013 were women. The U.S. Department of Commerce Economics and Statistics Administration report "Women in STEM: A Gap to Innovation" suggests that lack of female role models and gender stereotyping may be contributing factors to this disparity (Beede, 2011b). GeoCorps America provides all of its participants with access to a strong network of professional geoscientists. For the program's female participants, this may also represent greater access to potential female geoscientists who can act as role models. The strong number of female participants in GeoCorps may also have potential in addressing gender stereotyping in the field. Many GeoCorps projects are public-facing, and female geoscientists therefore have a greater public presence on America's public lands due to the program. The program also offers invaluable early career work experience, which may assist in keeping more women in geoscience-

related positions long term. Considering these benefits of the program, the high percentage of female participants in 2013 represents a significant contribution toward increasing the number of women working in the geosciences.

The U.S. Department of Commerce Economics and Statistics Administration's report "Education Supports Racial and Ethnic Equality in STEM" suggests that one of the leading factors in the lack of racial and ethnic diversity in STEM subjects is undergraduate graduation rates among underrepresented minority groups (Beede, 2011a). The study illustrated that Hispanics, African Americans, Native Americans and Alaskan Natives, and Hawaiian Natives and Pacific Islanders are less likely to obtain an undergraduate degree, or higher degree, than Asians or Caucasians. The AGI Status of the Geoscience Workforce report agrees with this assessment, and notes that diversity in the geoscience workforce is closely linked to the diversity in geoscience academic programs (Gonzales and Keane, 2011). Because the vast majority of GeoCorps America projects require participants to have some experience with the geosciences at a college level, the program caters to a very small audience among underrepresented minority groups. The participation of underrepresented minority groups in GeoCorps America compared to the participation of these groups in the geoscience professions as a whole, however, is positive. In 2013, Hispanics represented 5.3 % of the program participants, African Americans represented 2.6%, Native Americans and Alaskan Natives represented 1.7 %, and Pacific Islanders and Hawaiian Natives represented 0.9%. In the most recent statistics provided in the AGI Status of the Workforce report, Hispanics represented 3% of the geoscience workforce, African Americans represented 1.9%, and Native Americans as well as Pacific Islanders and all other underrepresented minority groups accounted for 1.1% of the workforce (Gonzales and Keane, 2011). GeoCorps also succeeds in encouraging a diverse participant group when the number of female participants that are also part of an underrepresented minority group is examined: 3.5% of the participants in 2013 were Hispanic women, 1.7% were African American women, 0.9% were Native American or Alaskan Native women, and 0.9% were Pacific Islander or Hawaiian Native women.

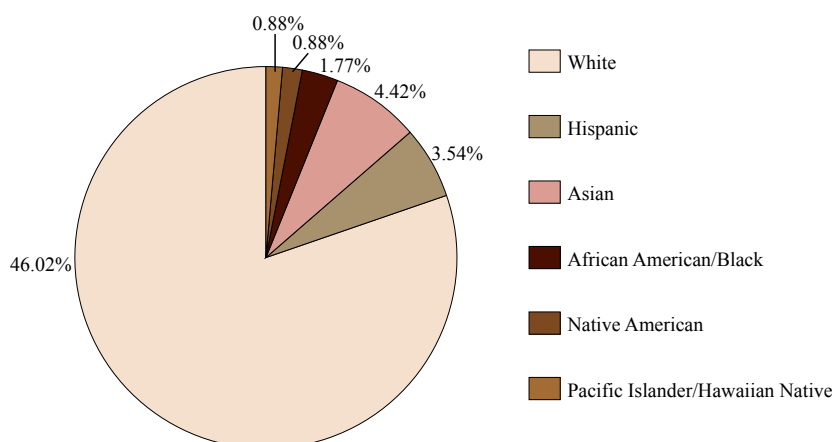
2013 GeoCorps Participants by Ethnicity



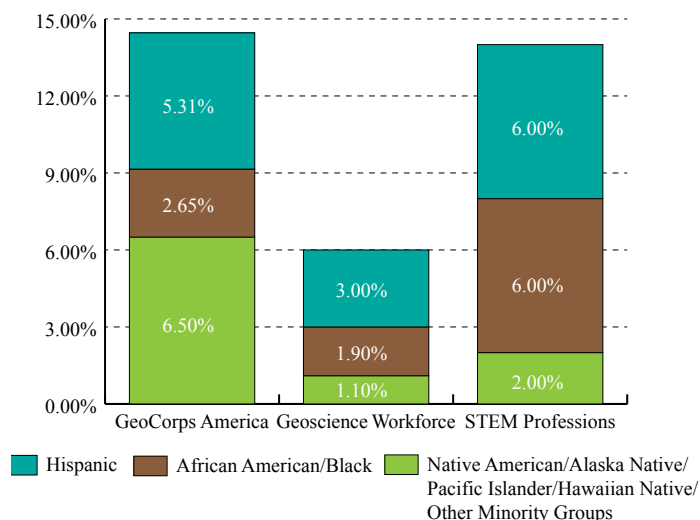
"I think that this program definitely changed my life for the better and gave me a new focus and determination to stay involved in this aspect of geology."

—Holly Keimig, GeoCorps Participant, Craters of the Moon National Monument and Preserve.

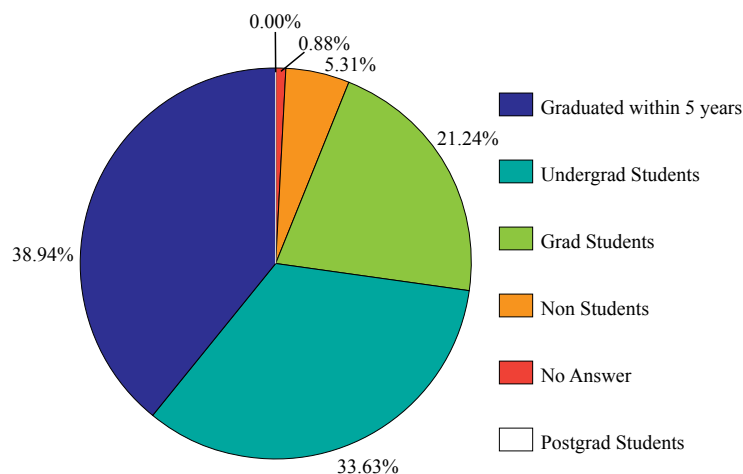
### 2013 GeoCorps Female Participants by Ethnicity



### 2013 GeoCorps Participant Diversity Compared to Diversity in Geoscience Workforce and in STEM Professions



### Education Standing of 2013 GeoCorps Participants



In general, the geosciences fare poorly when compared to the diversity of STEM professions as a whole, so the low but positive ethnic diversity numbers for GeoCorps are a step in the right direction. By encouraging a diverse community of participants, the program works toward increasing the diversity of the geoscience community as a whole and rectifying the disparity between the diversity of the geosciences and other STEM professions.

The diversity in the current educational standing of GeoCorps America's participants demonstrates some success in encouraging program diversity and in the aim to support early career development. Current undergraduate students made up 33% of the participants, and current graduate students made up 21%. More than half of the participants for 2013 were gaining experience for a future career in the geosciences while still completing their studies. As discussed in the AGI Status of the Geoscience Workforce report the transition from school to workforce is a critical point in a person's career, and this transition does not happen immediately, but over a period of years (Gonzales and Keane, 2011). In the five years after completing school, consideration for various other aspects of life in relation to their career field

may lead to graduates choosing a different profession (Gonzales and Keane, 2011). Supporting geoscientists in this early and critical stage of their career is essential to encouraging those with geoscience degrees to continue into geoscience jobs as well as to retaining as much of the diversity in the geoscience academic programs as possible. 39% of the GeoCorps America participants in 2013 had graduated within the five years prior to taking part in the program and were in this critical early stage of their career. Overall, the vast majority of the GeoCorps participants in 2013 were at stages in their career where the support that the program offers—a stronger network, access to potential mentors, and unique and relevant work experience—can make a big impact on their success in the field of geoscience.

There was also a great deal of diversity in the last college or university that GeoCorps participants attended. There were 76 different colleges and universities represented by the GeoCorps participants in 2013. This diversity not only represents geographic diversity, but also a diversity of cultural and educational experience that can only be positive for the geoscience community as a whole.

## GeoCorps America Partners and the Public

The GeoCorps America program not only makes a significant impact on the careers and lives of the program participants, but also on the program's partner agencies and members of the general public. In 2013, the 113 project participants volunteered a total of 2047.5 weeks, or 81,900 hours. Restrictions on staff and budgets at the Bureau of Land Management, the National Park Service, and the U.S. Forest Service can often prevent these public land agencies from pursuing certain research and outreach projects that would greatly benefit the public lands and the public. The work that participants completed during the 81,900 hours represents scientific and outreach contributions to the geosciences field that would often not otherwise be possible. A monetary value of \$22.14 per hour, based on the Independent Sector's value of volunteer time, can also be attributed to the volunteer work completed by GeoCorps participants. The monetary value of the total volunteer hours contributed to work on America's public lands by GeoCorps participants in 2013 is \$1,813,266.

Through their work, the GeoCorps America participants also have an impact on the general public, their appreciation for the geosciences, and their use and appreciation of America's public lands. Many of the participants' projects include public outreach, interpretation, and education. Many more of the participants interact with park visitors in the course of their research, conservation, or inventory work. Based on numbers provided in the 2013 participants' final evaluations, GeoCorps participants interacted with 750,017 members of the public visiting BLM Lands, National Parks, National Forests, and Abandoned Mine Lands in California. The work that the GeoCorps America participants complete also affects the long-term research, conservation, and management of the public lands that host them, and indirectly affects all of the members of the public that visit those public lands. In 2013, there were approximately 79,633,054 (Pomarico, 2012; U.S. Department of the Interior, National Park Service, 2014; USDA Forest Service, 2013) visitors to the public lands where GeoCorps participants were working.



GeoCorps participant delivering a public talk.

## Universities Attended by 2013 GeoCorps™ America Participants

Adams State University  
Appalachian State University  
Augustana College  
Beloit College  
Boise State University  
Boston College  
Boston University  
California State University  
Carleton College  
Clemson University  
Columbia University  
Columbus State University  
Cornell College  
Dartmouth College  
Dickinson College  
Eastern Michigan University  
Florida Atlantic University  
Fort Lewis College  
Franklin & Marshall College  
Furman University  
Georgia Southern University  
Grand Valley State University  
Hamilton College  
Hardin-Simmons University  
Harvard University  
Humboldt State University  
James Madison University  
Lane Community College  
Macalester College  
Mercyhurst University  
Miami University  
Michigan State University  
Middlebury College  
Northern Arizona University  
Northwest Missouri State University  
Oberlin College  
Oglala Lakota College  
Ohio State University  
Old Dominion University  
Oregon State University  
Pennsylvania State University  
San Francisco State University  
South Dakota School of Mines and Technology  
St. Norbert College  
State University of New York  
Texas A&M University  
Towson University  
University of California  
University of Colorado  
University of Denver  
University of Georgia  
University of Iowa  
University of Maryland  
University of Michigan  
University of Montana  
University of Nevada Las Vegas  
University of New Hampshire  
University of New Mexico  
University of North Carolina  
University of Oregon  
University of Puerto Rico  
University of Rhode Island  
University of Rochester  
University of Southern Indiana  
University of Tennessee  
University of Vermont  
University of Wisconsin  
Vanderbilt University  
Virginia Tech  
Wesleyan University  
Western Illinois University  
Western Michigan University  
Wheaton College  
Whitman College  
Winona State University



“GeoCorps allowed me to get my foot in the door with the National Park Service, which has now turned in to a paid position. I just graduated from college and I have a well-paying job at Denali National Park, an accepted GSA abstract, and tons of professional connections; it doesn’t get any better than that!”

—Amy Atwater, *GeoCorps Participant, Denali National Park and Preserve.*

## *Participation is an Investment in the Future*

The impact of participating in a GeoCorps project doesn’t end when the project ends. The GeoCorps America program provides its participants with a foundation on which they can build, or expand, a successful career in geoscience. In 2013, and in the past, GeoCorps participants have gone on to present at the GSA Annual Meeting and other geoscience conferences, publish research based on the work they completed as a GeoCorps participant, and continue into successful careers in geosciences.

In 2013, a session dedicated entirely to GeoCorps was organized at the GSA Annual Meeting. The organization and promotion of this session resulted in the highest number to date of GeoCorps participants in attendance at the meeting. Twenty-nine participants presented papers as part of the GeoCorps America session, and another three presented in other sessions. Continuing the strong relationship between the participants and their supervisors, three National Park Service staff also presented as part of the GeoCorps America session.



2013 GeoCorps participants volunteering at the GSA Annual Meeting.

## GeoCorps™ America Related Papers at the GSA Annual Meeting

**Tirzah Abbott**, GeoCorps Participant—Paleoex: Trackways Toward a Forest Service National Paleontological Geodatabase

**Amy Atwater**, GeoCorps Participant—Dinosaur Track Site Prediction Model in Denali National Park Using Remote Sensing, Geographic Information Systems (GIS), Databases and Suitability Analyses

**Elizabeth Baker**, GeoCorps Participant—Geologic Mapping of the Sheep Rock Unit of the John Day Fossil Beds National Monument, Oregon

**Vanessa Calder, Sean McCartney and Brett Sherman**, GeoCorps Participants—GeoCorps America's Contribution to the Understanding of Abandoned Mine Lands in California's National Parks

**George Carson**, GeoCorps Participant—Broadening Public Perception of Geology by Connecting it to the Biodiversity in Shenandoah National Park

**Paul Doss**, GeoCorps Participant—Distinct Perspectives and Benefits of GSA's GeoCorps America Program

**Randall (Tucker) Fullmer**, GeoCorps Participant—Coastal Topographical Change Analyses Associated with Superstorm Sandy at Miller Field, Staten Island, New York

**Jacob Grosskopf and Madeline Weigner**, GeoCorps Participants—Surveying Trackways and Other Traces From the Upper Member of the Late Triassic Chinle Formation in Dinosaur National Monument

**Hailey Harden**, GeoCorps Participant—Geologic Map Illustrating the Tectonostratigraphy and Structural Geology of a Part of the Brevard Zone in Georgia: Results From Detailed Geologic Mapping in the Chattahoochee River National Recreation Area, Sandy Springs, 7.5-Minute Quadrangle, Georgia

**Trevor Hobbs**, GeoCorps Participant—Utilizing Spherical Panoramic Photography in a GIS Environment for Aggregate Resource Inventory and Assessment: Huron-Manistee National Forests, MI

**Holly Keimig**, GeoCorps Participant—Landing on the Moon in Idaho: Interpreting a Volcanic Landscape for Varied Audiences at Craters of the Moon National Monument

**Robert Kelley**, GeoCorps Participant—Mitigation of Surface Erosion in Rock Creek Park

**Cassi Knight**, GeoCorps Participant—National Fossil Day: New Directions in Celebrating Our Fossil Heritage

**Jennifer Kolm**, GeoCorps Participant—The Role of GeoCorps Interns in Evaluating Climate Change and Characterizing Wetlands and Springs at the Glacier Ecosystems Experiments Site (GLEES), WY and the Fraser Experimental Forest, CO

**Kayla Lanoue**, GeoCorps Participant—Quantifying Connections: The Visitor-Geoscience Interface at Chaco Culture National Historical Park, New Mexico

**Samantha Lesser**, GeoCorps Participant—A Smithsonian Institution and National Park Service Collaboration to Manage Paleontological Resources

**Lisa Luna**, GeoCorps Participant—Monitoring the Effects of Acid Mine Drainage in the Lake Fork Watershed Near Leadville, CO

**Catalina Mejia**, GeoCorps Participant—Interaction Between Geographic Position, Marsh Type, Herbivory and Hydrology on the Hypsometry of Cape Cod National Seashore Salt Marshes

**Herb Meyer**, GeoCorps Mentor—Contributions by Paleontology GeoCorps Interns to Scientific Research, Resource Protection, and Public Outreach at Florissant Fossil Beds National Monument

**Tyler Miller**, GeoCorps Participant—Post-Fire Instream and Riparian Large Wood Loading, Boulder Creek, Wyoming

**Lynn Moore**, GeoCorps Participant—Geologic Heritage: Beyond the Designation

**Connor Newman**, GeoCorps Participant—Connecting Visitors to Geology at Oregon Caves National Monument

**Lisa Norby**, GeoCorps Coordinator/Mentor—Retrospective of a Successful NPS and GSA Partnership—Geoscientists-In-The-Parks Internship Program

**Justin Peinado**, GeoCorps Participant—El Malpais and Craters of the Moon National Monuments: Management, Protection, and Discovery

**Ryan Richardson**, GeoCorps Participant—Boulder Creek Fire Fluvial Geomorphology GeoCorps Positions: A Long Term Assessment of Channel Morphology and Large Wood Dynamics in Post-Fire Mountain Streams on the Bridger-Teton National Forest

**Katie Schultz**, GeoCorps Participant—The Role of Groundwater Sapping on Little Spring Creek, Great Sand Dunes National Park and Preserve, Colorado, USA

**Flora Sperberg**, GeoCorps Participant—Cave Monitoring at Oregon Caves National Monument

**Michelle Torres**, GeoCorps Participant—Measuring Damage in the Lower Parking Lot as a Proxy for Slope Movement at the Oregon Caves National Monument

**Michelle Torres**, GeoCorps Participant—Determining the Origin of Cave Sediments by Comparison to Modern Surface Stream Sediments at the Oregon Caves National Monument

**Laura Walkup**, GeoCorps Participant and **Scott Beason**, GeoCorps Mentor—Surficial Ice Velocities of the Lower Nisqually Glacier and Their Relationship to Outburst Flood Hazards at Mount Rainier National Park, Washington, United States

**Lindsey Yann**, GeoCorps Participant—Paleontology Outreach at Florissant Fossil Beds National Monument: Using Digital Media to Connect Monument Visitors with Paleontological Resources and Research





Erica Clites as a GeoCorps participant in 2010.



Erica Clites, 2014. Museum Scientist, University of California Museum of Paleontology.



Margie DeRose studying a flood and debris flow event as a GeoCorps participant.



Margie DeRose, 2014. Geologist and Project Manager, Coronado National Forest.

## GeoCorps Success Stories

After 16 years of GeoCorps America projects, many program alumni have gone on to build careers in the geosciences with public land agencies and with other organizations. The continued success of these alumni is an important indicator of the success of GeoCorps in giving its participants useful experience on their journey to becoming professional geoscientists. These are a few examples of GeoCorps alumni that have continued on into careers related to their GeoCorps experience.

### Erica Clites

*Museum Scientist*

*University of California Museum of Paleontology, California*

Erica Clites completed a Master of Science in Geological Sciences at the University of California and has a background in paleontology. Erica was a GeoCorps Guest Scientist for the National Park Service in 2010. She coordinated outreach for the first National Fossil Day with the National Park Service. After completing her work on National Fossil Day, Erica became a Physical Science Technician at Glen Canyon National Recreation Area. Erica is now a Museum Scientist at the University of California Museum of Paleontology. She makes fossil collections available for research and teaching by organizing them in stratigraphic order and putting locality records and fossil photographs online. She is the project manager for a National Science Foundation-funded project to rehabilitate and curate 100,000 invertebrate fossils. This includes supervising a team of UC Berkeley undergraduate and graduate students, as well as volunteers, in rehousing the former U.S. Geological Survey Menlo Park Invertebrate Collection.

### Margie DeRose

*Geologist & Program Manager, U.S. Forest Service*

*Coronado National Forest, Arizona*

Margie DeRose participated in GeoCorps America in 2008 as a geologist assisting both the BLM Bishop Field Office and Inyo National Forest in California during the summer while studying for her Master of Science degree. The research that Margie contributed to during her GeoCorps placement was later published and presented at the 2009 GSA Annual Meeting. Margie was a co-author in both instances. After completing her studies, she went on to work in temporary positions for both Inyo National Forest and the BLM Bishop field office before being hired as a permanent Minerals and Geology Program Manager by Inyo National Forest. In 2013, Margie DeRose became a Geologist and Program Manager for Coronado National Forest in Arizona. She is responsible for the permitting and environmental review of proposed mining projects on the forest. She leads interdisciplinary teams of resource specialists through the environmental review for each project. She also collaborates with members of the public, environmental groups, mining companies, and other state and federal agencies throughout this process. Through the collaborative and interdisciplinary review process that Margie DeRose leads, mining projects are conducted so as to minimize adverse environmental impacts on National Forest resources.

### **Sarah Doyle**

*Term Physical Scientist, National Park Service  
Glen Canyon National Recreation Area, Arizona*

Sarah Doyle participated in geology and paleontology GIS projects, including working with abandoned mine lands at the BLM Royal Gorge Field Office in Cañon City, Colorado, during 2013. She finished her GeoCorps project in December of 2013 and is now a Term Physical Scientist at Glen Canyon National Recreation Area, a position previously held by GeoCorps alumna Erica Clites. Sarah is responsible for the upkeep of paleontology locality information and the documentation of new sites. She also facilitates any paleontology or geology research being conducted at the park by academics or volunteers. Sarah has a background in geomorphology and GIS and will be applying these specialties to her position through new projects. She will be starting a comprehensive geohazards project for Lake Powell, as well as contributing to a project on climate change and a project on grazing's effects on the vegetation in the recreation area.



Sarah Doyle, 2013. GeoCorps participant at the BLM Royal Gorge Field Office.



Sarah Doyle, 2014. Term Physical Scientist at Glen Canyon National Recreation Area.

### **Jason Frels**

*Physical Scientist, The Bureau of Land Management,  
National Operation Center, Colorado*

Jason Frels participated in GeoCorps in 2011 at the BLM Washington Office. He worked as GIS Specialist for the Division of Recreation and Visitor Services on a database of BLM transportation and access routes and on developing an appendix for the BLM travel planning handbook. Not long after completing his GeoCorps placement, Jason was hired by the BLM as a HazMat Geologist. In 2012, Jason became a Physical Scientist with the Bureau of Land Management's National Operation Center. He works on geophysical investigations and characterization for abandoned mines, hazmat, and cultural programs. His work includes redesigning the IT solution that houses the national inventory of abandoned mine and hazmat sites. Jason also leads various studies for the abandoned mine lands program, including estimating the number and locations of un-inventoried sites. Jason has a background in the geosciences and a Master of Professional Studies focused on GIS.



Jason Frels, 2011. GeoCorps participant at the BLM Washington Office.



Jason Frels, 2014. Physical Scientist, BLM National Operations Center.



## *GeoCorps America Milestones*

### The 21st Century Conservation Service Corps and The Corps Network

In 2013, due to its involvement in GeoCorps America and Mosaics in Science, The Geological Society of America was named one of the 91 initial members of the 21<sup>st</sup> Century Conservation Service Corps (21CSC). The 21CSC harks back to President Franklin D. Roosevelt's Civilian Conservation Corps, which provided jobs on state and federal lands during the Great Depression. The goals of 21CSC are to "put Americans to work, preserve, protect, and promote America's greatest gifts, and build America's future" (The Corps Network, 2014).

GeoCorps America has also become an affiliate member of The Corps Network, which supports the 21CSC. Through these memberships, GeoCorps now has access to a greater corps support network and resources to help the program grow and offer more to its participants. New resources that the program may begin to use in the future include scholarships and further mentoring and career support options. In return, GeoCorps and Mosaics in Science offer the Corps Network contact with a corps group that has a STEM focus and a wider network base for its existing participants.

### Partnership with the California Department of Conservation

Work concluded on the projects through the California Department of Conservation Abandoned Mine Lands Unit in 2013. This was GeoCorps' first partnership with a state agency, and now that these projects have finished it is clear how successful this partnership has been for all parties. The GeoCorps participants provided both staff time and insight to help complete a detailed inventory project, and they received invaluable work and learning experience in return. It is hoped that GeoCorps will be able to use the experience gained through this partnership as a building block to work with more state agencies in the future.



Surveying abandoned mine features in Mojave National Preserve.

## The Future of GeoCorps™ America

The future of GeoCorps is its participants and partners. In the coming years, GeoCorps America will remain relevant by offering a variety of work experiences and support to its participants and experienced and dedicated geoscientists to its partners. The goal of the program is to continue to grow and expand—to have more projects, more participants, and more diversity. Meeting these goals will require specific attention to increasing partnerships and increasing the overall value of the program through the coming years.



Matthew Dawson, GeoCorps Program Officer.

### *Increase Partnership*

GeoCorps' ability to offer its participants unique and invaluable work experience is one of its greatest strengths. In order to maintain and increase the value of the GeoCorps program for its participants, the program needs to continue to add new opportunities. To this end, GeoCorps needs to focus on adding new partners. In the next few years, GeoCorps America will be focused on adding new federal partners, such as the U.S. Geological Survey. GeoCorps will also aim to include further federal and state agencies in the program.

### *Increase the Value of the Program*

A key area where GeoCorps can improve the value of the program is through offering more benefits to its participants, mentors, and alumni. There are a number of ways this can be done. The first goal is to create a more effective system for measuring and evaluating the program's success—including participant diversity, participant satisfaction, and the success rate among program alumni. Once there is a more complete picture of the needs of program participants, focus will be directed toward adding resources to further meet their needs. These resources might include additional training options, webinars, and scholarships. Reevaluating the needs of the program mentors is also a focus, with the

aim of offering mentors additional resources tailored to their specific needs. GeoCorps' new affiliation with the 21<sup>st</sup> Century Conservation Service Corps and The Corps Network, two major organizations that offer a variety of resources and a deep knowledge base, is a key step toward enhancing the program's value for both participants and mentors. GeoCorps also hopes to contribute to both of these organizations by creating linkages between GeoCorps participants and participants in other programs. Exploring the possibilities that these new memberships represents will be a major focus of the coming year. GeoCorps may also need to pursue additional funding sources to cover the costs involved with providing enhanced support to program participants and members.

### GeoCorps America: Focuses for the Future

2014–2015	INCREASE PARTNERSHIPS
	Pursue a partnership with USGS
	INCREASE PROGRAM VALUE
	Create more effective evaluation measures and methods
	Enhance communication with program alumni
	Engage further with 21CSC and The Corps Network
	Apply knowledge gained to provide more resources for participants and their mentors
2015–2020	INCREASE PARTNERSHIP
	Explore possible partnerships with additional Federal and State Agencies
	INCREASE PROGRAM VALUE
	Offer participants relevant resources such as training, webinars and scholarships
	Offer mentors relevant resources
	Utilize evaluation results to target areas needing improvement
Targets	Reach 150 participants by 2018
	Reach 150 projects by 2018
	Increase participant diversity



# GeoCorps™ America Organizational and Financial Overview

## Structure: Staff and Partners

GeoCorps America is a program of The Geological Society of America (GSA). The Executive Director of GSA, John W. Hess, reviews, approves, and signs agreements related to the program. The program is part of the Education and Outreach Department of GSA. The Senior Director of Education and Outreach, Gary Lewis, oversees the program and communicates with partner agencies in relation to agreements and contracts. Matthew Dawson is the GeoCorps Program Officer. He coordinates the daily operations of the GeoCorps America program. Allison Kerns, Education and Outreach Assistant, provides administrative support for the GeoCorps America program.

Many departments within GSA provide much needed and appreciated support for the program. Accounting processes and helps manage the many financial transactions that occur within the program, including processing the living-allowance checks for all of the participants. The IT department has contributed hours of work creating and maintaining the online application system and the GeoCorps website. Membership assists with GeoCorps recruiting by reaching out to a large network of campus representatives. The Publications Department has contributed a space for advertising on their website, which has drawn more attention to the GeoCorps webpage. Communications & Marketing provides advertising in *GSA Today* and *GSA Connection* and assists with other program marketing needs. They have also contributed a great deal of time and assistance creating a new logo for the GeoCorps program. The Meetings Department assisted with the planning of a GeoCorps session at the GSA Annual Meeting, including the program for the session, and with organizing a GeoCorps America alumni event. Sales & Service helps to field questions about GSA, the GeoCorps America program, and the application process. The GSA Foundation arranged the GeoCorps America booth at the GSA Annual Meeting and provides fliers and posters for the GSA Annual Meeting and section meetings, in addition to providing funding for the program.

The federal and state agencies that are partnered with GeoCorps America in 2013 to provide geoscience projects are the California Department of Conservation: Abandoned Mine Lands Unit, the Bureau of Land Management, the National Park Service, and the U.S. Forest Service.

## Financial Overview

2013 was a financially positive year for the GeoCorps America program, demonstrating the program's ability to survive financial turbulence. Despite the beginning of the federal budget sequester in March, which drastically affected the budgets of our partner organizations, GeoCorps America did not experience a large loss in income, or in the number of projects it was able to facilitate. The GeoCorps program ended calendar year 2013 with surplus revenue.

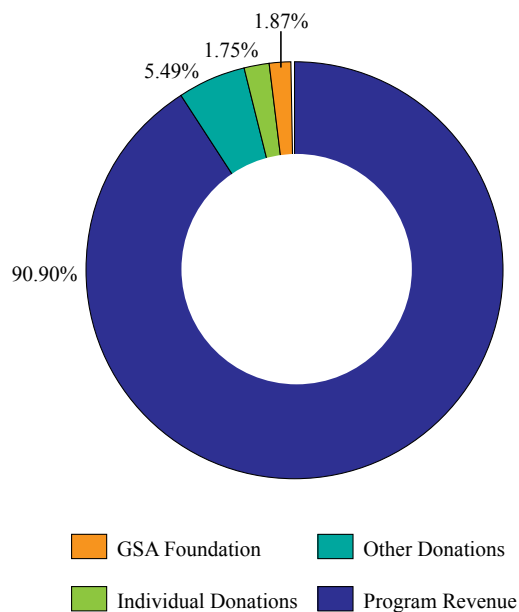
The numbers presented here are based on the calendar year, and not GSA's fiscal year, in order to present a more accurate view of the GeoCorps America program's revenue and expenses. Both the program's income and expenses follow the calendar year more closely than the GSA fiscal year, which ends in the middle of summer GeoCorps projects.

GeoCorps America Operating Revenue and Expenses		2013
Revenue		
GSA Foundation		\$23,000.00
Individual Donors (via the GSA Foundation)		\$21,500.00
Other Donations		\$67,643.00
Program Revenue		\$1,119,827.00
TOTAL REVENUE		\$1,231,970.00
Expenses		
General and Administrative		\$212,626.00
Program Support and Development		\$143,006.00
Field/Participant Expenses		\$729,863.00
TOTAL EXPENSE		\$1,085,495.00
NET INCOME/EXPENSES		\$146,475.00

## Operating Revenue

The majority of GeoCorps' operating revenue currently comes from the financial contributions of our partner organizations, the Bureau of Land Management, the National Park Service, and the U.S. Forest Service. These funds support the participants volunteering at each agency. Increasing the number of donors and alternative funding through grants is an important focus for GeoCorps, so that the program may expand the support that is offered to participants before and after their GeoCorps experience.

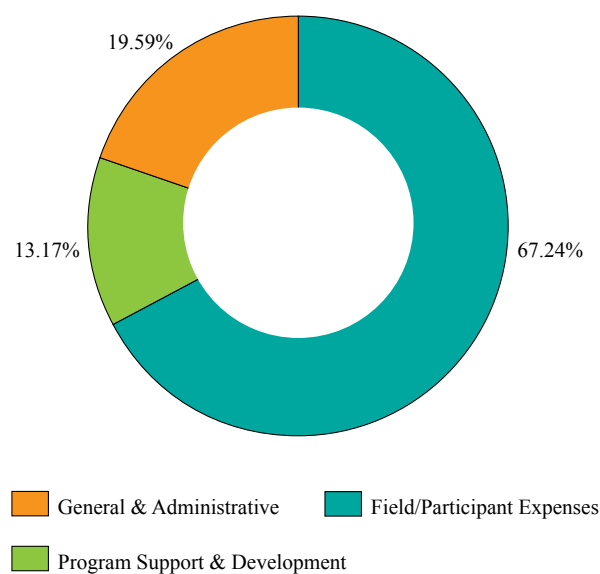
## 2013 GeoCorps Operating Revenue



## Operating Expenses

The goal for any education and career development program is to dedicate as many funds as possible directly to the program participants and program support and development, and as little to administration and other additional expenses. The industry standard is for direct program expenses to make up 78% of the program's overall expenditures (Roeger et al., 2011). For GeoCorps America, field/participant expenses and program support and development combine to account for 80.41% of the overall program expenses. This is above the industry standard and demonstrates significant success in focusing expenses where they will be most worthwhile: supporting the participants. 67.24% of the overall funds go directly to the field and participant expenses.

## 2013 GeoCorps Operating Expenses





# Acknowledgments

The GeoCorps™ America program receives support from a great variety of people and groups. Without their generous donations of time and funding, the contribution that GeoCorps America makes to the geosciences would not be possible.

Thank you to all of our participants, partners, mentors, and donors for your generous support!

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### The Bureau of Land Management

Heidi Breid	BLM Carlsbad Field Office
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Sarah Doyle	BLM Royal Gorge Field Office
Tait Erichsen	BLM Price Field Office
Robert Gay	BLM Moab Field Office
Douglas Hessler	BLM National Landscape Conservation System (NLCS) and NPS Office of Conservation and Outdoor Recreation (COR)
David Kambhu	BLM Upper Missouri River Breaks National Monument
Lisa Luna	BLM Royal Gorge Field Office
Carissa Snyder	BLM Royal Gorge Field Office
William Thompson	BLM Arizona Strip District
Gregory Welter	BLM San Juan Public Lands Center

### California Department of Conservation Abandoned Mine Lands Unit

Sean McCartney	California Abandoned Mine Land Program
Brett Sherman	California Abandoned Mine Land Program
Vanessa Calder	California Abandoned Mine Land Program & Death Valley National Park

### The National Park Service

Amy Atwater	Denali National Park and Preserve
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Nicole Bader	Glacier National Park
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Jonathan Beyeler	Mount Rainier National Park
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Brian Castro	Bryce Canyon National Park
Michael Catches-Enemy	Badlands National Park
Christine Chan	Grand Canyon National Park
Chris Ciervo	Great Basin National Park
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Meredith Dennis	Dinosaur National Monument
Alison Dernbach	Florissant Fossil Beds National Monument

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Cyrus Green	Colorado National Monument
Heather Grybas	Assateague Island National Seashore
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Hailey Harden	Chattahoochee National Recreation Area
Kelly Hattori	Florissant Fossil Beds National Monument
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Chester Jackson	Fort Pulaski National Monument and Fort Frederica National Monument
Joshua Johnson	Capitol Reef National Park
Ryan Jubran	Fort Pulaski National Monument and Fort Frederica National Monument
Randy Kath	Chattahoochee National Recreation Area
Holly Keimig	Craters of the Moon National Monument and Preserve
Robert Kelley	Rock Creek Park
Siobhan Kenney	Glacier National Park
Cassi Knight	Geologic Resources Division & Grand Canyon National Park (South Rim)
Jennifer Kolm	Capitol Reef National Park & Colorado National Monument
Amishi Kumar	Mount Rainier National Park
Kayla Lanoue	Chaco Culture National Historical Park
Jory Lerback	Guadalupe Mountains National Park
Chelsea Lewis	Rock Creek Park
Katherine Lodder	Bryce Canyon National Park
Garrison Loope	Dinosaur National Monument
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Steven Lundblad	John Day Fossil Beds National Monument
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Jason Padgett	Redwood National and State Parks
Nancy Parker	Little Bighorn Battlefield National Monument
Andrew Patel	Bryce Canyon National Park

*The National Park Service (continued)*

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Rebecca Rossi	Mount Rainier National Park
Mitra Sartipi	Grand Canyon–Parashant National Monument
Peri Sasnett	Grand Canyon National Park (North Rim)
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Graham Schindel	Grand Canyon National Park
Katie Schultz	Great Sand Dunes National Park
Erin Smith	Mount Rainier National Park
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Samantha Stanford	Congaree National Park
Erica Stephens	Grand Teton National Park
Kendall Story	Redwood National and State Parks
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Michelle Torres	Oregon Caves National Monument
Courtney Van Stolk	Mammoth Cave National Park
Philip Varela	Dinosaur National Monument
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Kent Walters	Catoctin Mountain Park
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*The U.S. Forest Service*

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Kyle Makovsky	Sawtooth National Forest
Tyler Miller	Medicine Bow National Forest, Wyoming, and Arapaho-Roosevelt National Forest, Colorado
Jonathan Moskal	Umpqua National Forest, Cottage Grove Ranger District
Kelli Parsons	Willamette National Forest, McKenzie River and Middle Fork Ranger Districts
Daniel Pawlak	Tongass National Forest
Ryan Richardson	Bridger-Teton National Forest
Tiffany Steinert	Sierra National Forest
Richard Van Winkle	Eldorado National Forest



## Partnerships

Partner agencies provide GeoCorps America participants with invaluable work experience opportunities. Our particular thanks goes out to all of the GeoCorps mentors who provide guidance to the participants, and to the individuals at each agency who work to promote the program and encourage individual lands, parks, and forests to participate.

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*Assistant Director – Minerals and Geology Management*  
*Office of Geological Resources, Hazards and Surface Management*  
*The U.S. Forest Service*

**Lisa Norby**, *Chief, Energy and Minerals Branch*  
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*Geological Resources Division*  
*The National Park Service*  
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## *Donors*

GeoCorps America's donors provide much needed financial support for projects that contribute greatly to our geoscience knowledge but that would not be possible without their financial contributions to the program. Thank you to all of our donors. Your generous contributions to the program are making a difference in the lives of our participants, in the preservation of America's public lands, and in our knowledge of the geosciences.

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The program's partners, the Bureau of Land Management, The National Park Service, and the U.S. Forest Service also contribute generously with both their time and funding.

### Organizational Donors

GeoCorps America also receives financial support from conservation associations and organizations associated with individual public lands. Their support allows these places the funds to dedicate to a GeoCorps position, and the program and its participants could not be more grateful for their help.

Badlands Natural History Association  
Bryce Canyon Natural History Association  
Capitol Reef Natural History Association  
Colorado National Monument Association  
Discover Your Northwest  
Friends of the Florissant Fossil Beds  
Grand Canyon Association  
Lake Fork Valley Conservancy  
Rocky Mountain Nature Association  
Western National Parks Association  
Zion Natural History Association

### Individual Donors

Many individuals make contributions to the program's funding through donations made when they purchase their GSA membership and online through the GSA Foundation. ([www.gsafweb.org/makedonation.html](http://www.gsafweb.org/makedonation.html)) These individual contributions are greatly appreciated.

Sally and Robert Newcomb contribute generously to the GeoCorps program, supporting projects in Denali National Park and Preserve. The added complications and expenses of sending participants to Alaska make these interesting and unique projects more difficult to fund and make Sally and Robert Newcomb's contributions extremely valuable and much appreciated.

## *Works Cited*

For the GeoCorps Annual Report Works Cited visit: [http://rock.geosociety.org/g\\_corps/documents/GeoCorpsAnnualReport2013\\_WorksCited.pdf](http://rock.geosociety.org/g_corps/documents/GeoCorpsAnnualReport2013_WorksCited.pdf)





If you have questions regarding  
GeoCorps™ America, go to

**[www.geosociety.org/geocorps](http://www.geosociety.org/geocorps)**

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In partnership with the Bureau of Land Management,  
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